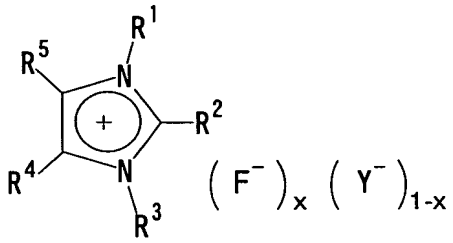
CLAIMS

1. A method for producing a fluorine-containing organic compound represented by the formula (7):

$$R\text{-}Fm \qquad (7)$$

wherein R represents a substituted or unsubstituted saturated hydrocarbon group, or a substituted or unsubstituted aromatic group and m represents an integer satisfying the inequality: $1 \leqq m \leqq n$,

which comprises reacting a fluorinating agent represented by the formula (1):



$$\left(F^-\right)_x \left(Y^-\right)_{1-x} \qquad (1)$$

wherein R^1 and R^3 are the same or different, and represent an optionally substituted alkyl group,

R^2, R^4 and R^5 are the same or different, and represent a hydrogen atom or an optionally substituted alkyl group,

x satisfies $0 < x \leqq 1$, and

Y^- represents a monovalent anion other than a fluoride ion,

with an organic compound of the formula (6):

$$R\text{-}Ln \qquad (6)$$

wherein R is the same as defined above, L represents a

leaving group and n represents an integer of 1 or more.

2. The method according to claim 1, wherein R is the optionally substituted saturated hydrocarbon group.

3. The method according to claim 1, wherein R is the optionally substituted aromatic group.

4. The method according to claim 1, 2 or 3, wherein L is a chlorine atom, a bromine atom, an iodine atom, a nitro group, a sulfo group, an optionally substituted alkylsulfonyloxy group, an optionally substituted arylsulfonyloxy group, an optionally substituted alkylcarbonyloxy group or an optionally substituted arylcarbonyloxy group.

5. The method according to claim 1, wherein the fluorinating agent of the formula (1) is an anhydrous salt.

6. The method according to claim 1, wherein the fluorinating agent is an adduct of methanol, water or both.

7. The method according to any one of claims 1-6, wherein X is 1.

8. The method according to any one of claims 1-6, wherein X satisfies $0<X<1$.

9. The method according to claim 8, wherein X satisfies $0.4<X<0.9$.

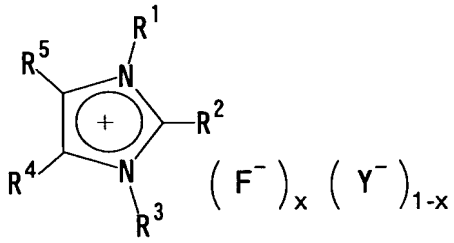
10. The method according to claim 1 or 8, wherein the monovalent anion represented by Y^- is a halide ion, a borate ion, a phosphate ion, an antimonate ion, a sulfonate

ion, a nitrate ion, a carbonate ion, a carboxylate ion or an amide ion.

11. The method according to claim 10, wherein Y^- is Cl^- or Br^-.

12. The method according to claim 1, wherein n represents 1, 2 or 3.

13. An imidazolium salt anhydride represented by the formula (1):



(1)

wherein R^1 and R^3 are the same or different, and represent an optionally substituted alkyl group,

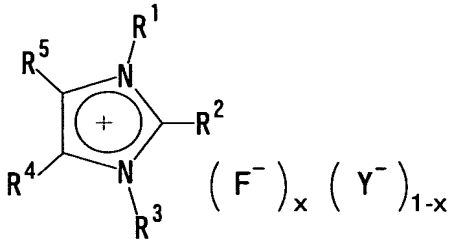
R^2, R^4 and R^5 are the same or different, and represent a hydrogen atom or an optionally substituted alkyl group,

x satisfies $0<x\leqq 1$, and

Y^- represents a monovalent anion other than a fluoride ion,

provided that excepting in a case that when x represents 1, either R^1 or R^3 represents a methyl group and the other represents an ethyl group.

14. An imidazolium salt of the formula (1):



(1)

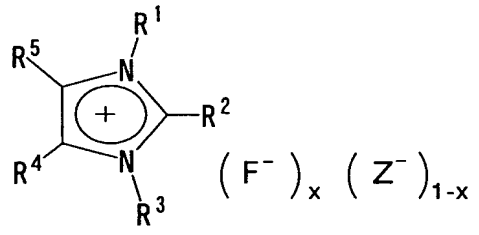
wherein R^1 and R^3 are the same or different, and represent an optionally substituted alkyl group,

R^2, R^4 and R^5 are the same or different, and represent a hydrogen atom or an optionally substituted alkyl group, x satisfies $0<x<1$, and

Y^- represents a monovalent anion other than a fluoride ion.

15. The imidazolium salt according to claim 13, wherein the monovalent anion represented by Y^- is a halide ion, a borate ion, a phosphate ion, an antimonate ion, a sulfonate ion, a nitrate ion, a carbonate ion, a carboxylate ion or an amide ion.

16. An imidazolium salt of the formula (5):



(5)

wherein R^1 and R^3 are the same or different, and represent an optionally substituted alkyl group,

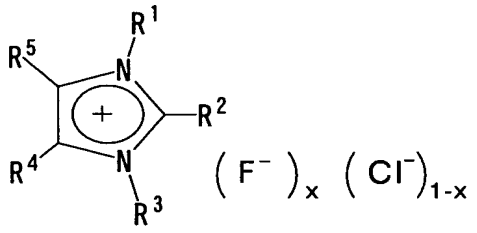
R^2, R^4 and R^5 are the same or different, and represent a hydrogen atom or an optionally substituted alkyl group,

Z^- represents a chloride ion or a bromide ion, and

x satisfies $0<x<1$.

17. The imidazolium salt according to claim 13, 14, 15 or 16, wherein X satisfies $0.4<X<0.9$.

18. A method for producing an imidazolium salt of the formula (3):



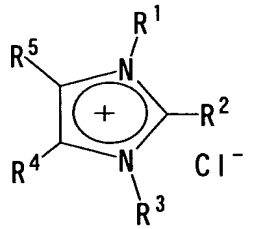
(3)

wherein R^1 and R^3 are the same or different, and represent an optionally substituted alkyl group,

R^2, R^4 and R^5 are the same or different, and represent a hydrogen atom or an optionally substituted alkyl group, and

x satisfies $0<x\leqq 1$,

which comprises reacting an imidazolium chloride represented by the formula (2):



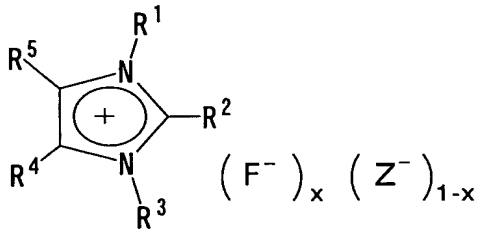
(2)

wherein R^1, R^2, R^3 , R^4 and R^5 are as defined above, with a silver fluoride.

19. The method according to claim 18, wherein the

silver fluoride is a monovalent silver fluoride.

20. A method for producing an imidazolium salt represented by the formula (5):



(5)

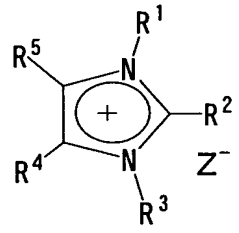
wherein R^1 and R^3 are the same or different, and represent an optionally substituted alkyl group,

R^2, R^4 and R^5 are the same or different, and represent a hydrogen atom or an optionally substituted alkyl group,

Z^- represents a chloride ion or a bromide ion and

x satisfies $0<x\leqq 1$,

which comprises reacting an imidazolium salt of the formula (4):



(4)

wherein R^1, R^2, R^3 , R^4, R^5 and Z^- are as defined above, with potassium fluoride in methanol.

21. Use of the alkyl-substituted imidazolium salt according to claim 20 as a fluorinating agent.